

Translation

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference Co 10304	FOR FURTHER ACTION	See Form PCT/IPEA/416
International application No. PCT/EP2004/007174	International filing date (<i>day/month/year</i>) 01.07.2004	Priority date (<i>day/month/year</i>) 10.07.2003
International Patent Classification (IPC) or national classification and IPC C08G77/395, C07F9/40		
Applicant CONSORTIUM FÜR ELEKTROCHEMISCHE INDUSTRIE GMBH		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 6 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising: a. <input type="checkbox"/> (sent to the applicant and to the International Bureau) a total of _____ sheets, as follows: <input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
4. This report contains indications relating to the following items: <input checked="" type="checkbox"/> Box No. I Basis of the report <input type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI Certain documents cited <input type="checkbox"/> Box No. VII Certain defects in the international application <input type="checkbox"/> Box No. VIII Certain observations on the international application

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

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Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language _____, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-9 _____ as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☒ the claims:
- nos. 1-10 _____ as originally filed/furnished
- nos.* _____ as amended (together with any statement) under Article 19
- nos.* _____ received by this Authority on _____
- nos.* _____ received by this Authority on _____
- ☐ the drawings:
- sheets _____ as originally filed/furnished
- sheets* _____ received by this Authority on _____
- sheets* _____ received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages _____
- ☐ the claims, nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages _____
- ☐ the claims, nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1. Statement			
Novelty (N)	Claims	1-10	YES
	Claims		NO
Inventive step (IS)	Claims		YES
	Claims	1-10	NO
Industrial applicability (IA)	Claims	1-10	YES
	Claims		NO
2. Citations and explanations (Rule 70.7)			
<p>This report refers to the following documents:</p>			
<p>D1: US-A-4 676 919 (ZIENTEK ET AL.) 30 June 1987 (1987-06-30)</p>			
<p>D2: US-A-4 772 408 (MOHR ET AL.) 20 September 1988 (1988-09-20)</p>			
<p>D3: US-A-3 869 340 (KOTZSCH ET AL.) 4 March 1975 (1975-03-04).</p>			
1. Novelty			
<p>The compounds according to claim 1 are not disclosed in the prior art and therefore the subject matter of claims 1-10 is novel within the meaning of PCT Article 33(2).</p>			
2. Inventive Step			
<p>The present application does not meet the requirements of PCT Article 33(1) because the subject matter of claims 1-10 does not involve an inventive step within the meaning of PCT Article 33(3):</p>			

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Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement

Documents D1 and D2 are taken as the prior art closest to the subject matter of claim 1. They disclose silanes for use in antifreeze. The compounds disclosed in D1 and D2 (see international search report) differ from the present claim 1 in that the silane group and the phosphorous group are linked by ethylene or propylene, whereas methylene is used in the claimed silanes. Further, the general formulas from D1 and D2 (see column 9) overlap with the general formula (I) of the present claim 1.

Moreover, document D3 discloses phosphorus-modified silanes for use as adhesive. The general formula of D3 (see claim 1) also overlaps with the formula (I) claimed in the present application.

It would be obvious for a person skilled in the art to modify slightly the compounds described in D1 and D2 or to make a selection of the general formulas known from D1-D3 in order to provide further compounds as additives for antifreeze or as adhesives.

The applicant states that the use of a chloromethyl-based starting material with the methylene compounds of the present application is not obvious because these have only recently become available, the methylene compounds are not accessible preparatively with the methods already known with propylene or ethylene compounds, and documents D1-D3 say nothing with regard to the method of preparation.

A product can in fact be found inventive if there is no known way or applicable method of preparing it in the

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prior art and this preparation then is brought about for the first time by the claimed method and in an inventive way besides.

However, the chloromethyl-based starting compounds used in the application are known: chloromethyl dimethoxymethylsilane (CAS RN: 2212-11-5) is disclosed, for example, in J.Med.Chem. 1966, 9, 949-952; chloromethyl dimethylmethoxysilane (CAS RN: 18143-33-4) is disclosed in J.Organometal.Chem. 1980, 190(3), 247-256; chloromethyl trimethoxysilane (CAS RN: 5926-26-1) is disclosed in Liebigs Ann.Chem. 1987, 51-5. Further, D2 describes a method of preparing phosphite ester derivatives of silanes (see column 9, lines 24-34). Furthermore, comparative example 5 in the description has already been done in the prior art according to the claimed method.

Since, then, both the starting compounds and the method of preparation were available to a person skilled in the art, the claimed method cannot contribute an inventive step to the claimed compounds.

The applicant also states that the claimed compounds have hydrolysis half-times of less than two minutes, which represents a distinct advantage for technical applications and is not obvious from the prior art.

What can be judged a surprising effect can be taken as an indicator of inventive step. When comparative tests are carried out to demonstrate an inventive step with an improved effect, it must be convincingly shown that this

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Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;
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effect is attributable to the feature of the invention that distinguishes it from the closest prior art (D1-D3).

The comparative tests indicated in example 6 in the description relate to diethoxy-phosphite ester-methyl-trimethoxysilane, which however is not considered to be the closest prior art, for this silane is not known for any claimed application or property. Hence, this improved hydrolysis half-time cannot be judged a surprising effect.

For the above reasons, the subject matter of claims 1-10 cannot be considered inventive (PCT Article 33(3)).

3. Industrial Applicability

The compounds claimed in the present application are suitable for use in antifreeze and therefore the subject matter of claims 1-10 can be considered to have industrial applicability (PCT Article 33(4)).